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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,209	06/22/2001	Yuko Tachibana	209663USPCT	6187
22850	7590	12/22/2004		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER PIZIALI, ANDREW T	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/857,209

Applicant(s)

TACHIBANA ET AL. 

Examiner

Andrew T Piziali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2,6-9,11,13-15 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,6-9,11,13-15 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Response to Amendment*

1. The amendment filed on 11/15/2004 has been entered. Applicant's amendment necessitated the new grounds of rejection presented in this Office action.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2, 6-7, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,948,538 to Brochot et al. (hereinafter referred to as Brochot) in view of USPN 5,691,044 to Oyama et al. (hereinafter referred to as Oyama).

Regarding claims 2, 6-7, 9 and 11, Brochot discloses a laminate which comprises a substrate, and a titanium oxide layer, a metal layer and a titanium oxide layer laminated alternately in this order on the substrate in  $(2n + 1)$  layers (wherein  $n$  is a positive integer), wherein a barrier layer (corresponding to the claimed interlayer) is interposed at at least two interlaminar boundaries between the titanium oxide layer and the metal layer, wherein each metal layer independently is a layer containing silver as the sole or main component, wherein the thickness of each barrier independently is from 0.5 to 4 nm, wherein the titanium oxide layer closest to the substrate and the titanium oxide layer furthest from the substrate each independently has a thickness of from 20 to 60 nm (see Table 2), and all other titanium oxide layers each independently has a thickness of from 40 to 120 nm (see Table 2), and which

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laminate contains at least two metal layers (see entire document including column 2, lines 5-19, column 3, line 38 through column 4, line 32 and Table 2).

Brochot discloses that the barrier layer material may be a metal that is subsequently oxidized (column 4, lines 4-15), but Brochot does not specifically mention the use of a nitride barrier layer. Oyama discloses that it is known in the coated glass art to use metal or nitride barriers layers, such as silicon nitride barrier layers (column 5, line 36 through column 6, line 23). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the barrier layers from any suitable material capable of protecting the underlying silver layer from oxidation, such as a silicon nitride, as taught by Oyama, because it is within the general skill of a worker in the art to select a known material on the basis of its suitability.

Regarding claim 2, Brochot does not mention the specific refractive index of titanium oxide layers, but considering that the applicant's specification discloses that a layer consisting of titanium oxide (titania) possesses a refractive index of at least 2.4 at a wavelength of 550 nm, the titanium oxide (titania) layers of Brochot appear to inherently possess a refractive index of at least 2.4 at a wavelength of 550nm.

Regarding claims 6 and 9, considering the identical article disclosed by Brochot in view of Oyama in terms of layer order, layer materials, and layer thicknesses, compared to applicant's claimed article, it appears that the article disclosed by Brochot in view of Oyama inherently possesses the claimed sheet resistance, visible light transmittance, and visible light reflectance.

Regarding claim 7, Brochot discloses that a resin film (PET) having a low-reflecting property may be laminated on the laminate (column 4, lines 59-67).

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4. Claims 7-8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,948,538 to Brochot in view of USPN 5,691,044 to Oyama as applied to claims 2, 6-7, 9 and 11 above, and further in view of USPN 6,045,896 to Boire et al. (hereinafter referred to as Boire).

Regarding claims 7-8, Brochot does not mention a near-infrared shielding resin film, but Boire discloses that it is known in the coated glass art to laminate a resin film having a low-reflecting property and/or a near-infrared shielding property onto a coated glass article (see entire document including column 8, lines 47-64). It would have been obvious to one having ordinary skill in the art at the time the invention was made to laminate a resin film having a low-reflecting property and/or a near-infrared shielding property onto the coated glass article, as taught by Boire, because the resin would provided reflecting and/or shielding properties desired in some coated glass applications.

Regarding claim 15, Brochot discloses that all the metal layers may be covered with a barrier layer (column 4, lines 4-15), but Brochot does not mention placing a barrier layer under every metal layer. Boire discloses that it is known in the coated glass art that barrier layers be placed both over and under every metal layer for maximum oxidation prevention safety (column 4, lines 1-15). It would have been obvious to one having ordinary skill in the art at the time the invention was made to place a barrier both over and under every metal layer, as taught by Boire, for maximum oxidation prevention safety.

5. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,948,538 to Brochot in view of USPN 5,691,044 to Oyama as applied to claims 2, 6-7, 9 and 11 above, and further in view of USPN 6,255,031 to Yao et al. (hereinafter referred to as Yao).

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Brochot does not mention a near-infrared shielding resin film, but Yao discloses that it is known in the coated glass art to laminate a resin film having a low-reflecting property and/or a near-infrared shielding property onto a coated glass article (see entire document including column 2, lines 9-42 and column 15, lines 45-58). It would have been obvious to one having ordinary skill in the art at the time the invention was made to laminate a resin film having a low-reflecting property and/or a near-infrared shielding property onto the coated glass article, as taught by Yao, because the resin would provided reflecting and/or shielding properties desired in some coated glass applications.

6. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,948,538 to Brochot in view of USPN 5,691,044 to Oyama as applied to claims 2, 6-7, 9 and 11 above, and further in view of USPN 5,723,075 to Hayasaka et al. (hereinafter referred to as Hayasaka).

Brochot does not mention a near-infrared shielding resin film, but Hayasaka discloses a resin with a near-infrared absorbent and further discloses that the resin may be deposited on a desired substrate to endow the substrate with a near-infrared absorbing property (column 14, lines 21-35). It would have been obvious to one having ordinary skill in the art at the time the invention was made to laminate the glass article with a layer of resin with a near-infrared absorbent, as disclosed by Hayasaka, because the resin would endow the substrate with a near-infrared absorbing property which would be desirable in applications requiring low reflectance.

7. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,948,538 to Brochot in view of USPN 5,691,044 to Oyama as applied to claims 2, 6-7, 9 and 11 above, and further in view of USPN 5,595,825 to Guiselin.

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Regarding claims 13-14, Brochot does not specifically mention using three or four metal layers, but Guiselin discloses that it is known in the art that increasing the number of metal films in a coated glass article enables the solar protection to be optimized, which in turn results in a reduction of the solar factor of the article (see entire document including column 1, lines 24-32). It would have been obvious to one having ordinary skill in the art at the time the invention was made to increase the number of silver layers to three or four silver layers, as disclosed by Guiselin, because increasing the number of metal film layers in a coated glass article enables the solar protection to be optimized, which in turn results in a reduction of the solar factor of the pane.

Regarding claim 15, Brochot discloses that all the metal layers may be covered with a barrier layer (column 4, lines 4-15), but Brochot does not mention placing a barrier layer under every metal layer. Guiselin discloses that it is known in the coated glass art that barrier layers be placed over every metal layer to protect the metal layers from oxidation and that barrier layers may be placed under every metal layer to improve adhesion and to more effectively resist later thermal treatments (column 4, lines 30-54). It would have been obvious to one having ordinary skill in the art at the time the invention was made to place a barrier layer under every metal layer, as taught by Guiselin, to improve adhesion and to more effectively resist later thermal treatments.

8. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,948,538 to Brochot in view of USPN 5,691,044 to Oyama as applied to claims 2, 6-7, 9 and 11 above, and further in view of Applicant's Disclosure.

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Brochot does not specifically mention using three or four metal layers, but the applicant discloses that it is known in the art that increasing the number of metal films in a coated glass article prevents the reflection color tone from being impaired (see page 2, line 12 through page 3, line 4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to increase the number of metal layers to three or four metal layers, because increasing the number of metal films in a coated glass article prevents the reflection color tone from being impaired.

9. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,948,538 to Brochot in view of USPN 5,691,044 to Oyama as applied to claims 2, 6-7, 9 and 11 above, and further in view of USPN 4,565,719 to Phillips et al. (hereinafter referred to as Phillips).

Brochot discloses that each of the metal layers may be made of silver with a minor content of another metal (column 3, lines 38-41), but Brochot does not specifically mention adding palladium to the silver layers. Phillips discloses that it is known in the coated glass art to use infra-red reflecting layers containing Ag as the main component with a minor content of Pd, wherein the Pd content as Pd/Ag is from 0.3 to 11.1 at %, because the environmental stability and durability of the silver layers increases (see entire document including column 2, lines 3-23 and lines 47-54, column 3, lines 18-59 and column 4, lines 7-24). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the infra-red reflecting silver layers of Brochot from Ag with a minor content of Pd, wherein the Pd content as Pd/Ag is from 0.3 to 11.1 at %, as disclosed by Phillips, because the environmental stability and durability of the silver layers increases.

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***Response to Arguments***

10. Applicant's arguments have been considered but are moot in view of the new grounds of rejection.

***Conclusion***

11. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

atp

 12/16/04  
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